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and 1915. During this last year Dr. Coles took a female specimen 18 feet wide, cut it up into segments of which he made plaster casts, and sent material and casts to the American Museum. From these Mr. J. C. Bell of our department of preparation made the life-sized cast which is one of the chief prizes of our Fish Hall.

The most complete account of the natural history of Manta is contained in an article by Dr. Theodore Gill, "The story of the devil-fish." *Smithsonian Miscellaneous Collections*, 1908, vol. 52, pp. 155-180. 15 figs.

AMERICAN MUSEUM OF
NATURAL HISTORY

E. W. GUDGER

JOHN CASPER BRANNER

JOHN CASPER BRANNER, geologist and President Emeritus of Stanford University, was born in New Market, East Tennessee, July 4, 1850, and died in Palo Alto, California, on March 1, 1922. He entered Cornell University in 1870, soon after its organization, graduating in 1874 as Bachelor of Science, subsequently receiving the degree of Ph. D. from Indiana University and that of LL. D. from the University of California. In 1883 he married Susan D. Kennedy of Oneida, New York, and left three children: John K., architect, George C., geologist-philosopher, and Elsie, Mrs. Frederick Hall Fowler.

His advanced work at Cornell was under a great teacher of Geology, Charles Frederick Hartt, who (during vacations) acted as Imperial Geologist of Brazil. Thus with Orville A. Derby, Richard Rathbun, Herbert H. Smith, and other student assistants, Branner went to Brazil where, upon the death of Hartt in 1875, he became director of the Imperial Geological Commission. Afterward, Brazil having become a republic, he entered the service of the Sao Cyriaco Mining Company at Minas Geraes as engineer and interpreter. Later he again went to Brazil and to Argentina as special botanist for Thomas A. Edison in search of wood fitted for certain electrical uses, and still later represented the United States Department of Agriculture in the former country. Return-

ing to America in 1883, he served as topographical geologist of the Survey of Pennsylvania, a position resigned to accept that of professor of geology in the University of Indiana, where his college friend, the present writer, had just been appointed President. In 1891, he entered the faculty of the newly founded Stanford University as professor of geology, later becoming vice-president of the institution. In 1913 when the title of Chancellor was created for me that I might be free for public service, he was elected President of the University, and held that office up to his retirement as Emeritus in 1917.

Branner directed three scientific expeditions to Brazil: one under the patronage of Alexander Agassiz in 1899, one in 1907 supported by Richard A. F. Penrose, a former assistant professor at Stanford, and a third in 1911 for the Brazilian government. This last made a geological and biological study of the coast north and south of the mouth of the Amazon river, the especial purpose being to determine the effect of the great volume of fresh water brought into the ocean by the Amazon upon the marine life of the ocean.

His publications include a volume on the Geology of Brazil, with a large number of special papers, and a grammar of the Portuguese language. His other memoirs on Geology and Physical Geography are very numerous; his "Bibliography of Clays and Arts" is an important contribution to that subject.

Branner was a fellow of the Geological Society of America, a member of the Geological Society of London, of the Société Géologique de France, the National Academy of Sciences, the American Philosophical Society. He was also a member and for a time president of the American Seismological Society, and associate editor of the *Journal of Geology*. In 1906 he was appointed to the California Earthquake Commission, and in 1915 served the United States government on the commission to investigate the land slides on the Panama Canal.

In 1911 the Hayden Medal was conferred upon him by the Academy of Natural Science of Philadelphia "in recognition of the value of contributions to geological science, and of

the benefits derived from his able and conscientious discharge of the official trusts confided to him."

In 1912 he published "How and Why Stories," a delightful collection of tales told by negroes in Tennessee, bearing on the episodes of creation—"how the snake lost his legs," and the like—quite worthy of place besides the Georgia tales of "Uncle Remus."

In person Branner was robust and vigorous, six feet in height and well proportioned, a man of attractive personality and excellent address. In college he was noted for his dry humor, unfailing readiness, and good nature. As a teacher he was singularly successful in training men to thorough and accurate dealing with problems of geology and mining, gaining the personal love and confidence of his students. Among his disciples are many of high standing in the profession—Herbert Hoover, Robert V. Anderson, Frank M. Anderson, Ralph Arnold, George H. Ashley, Carl H. Beal, Willis S. Blatchley, W. J. Crook, H. W. Durrell, Noah F. Drake, Frank L. Hess, Theodore L. Hoover, J. M. Hyde, D. S. Kimball, E. M. Kindle, Newton B. Knox, Henry Landes, Deane P. Mitchell, James H. Means, John F. Newsom, Frederick W. Nobs, Edward H. Nutter, W. A. Pritchard, A. H. Purdue, Milnor Roberts, Hugh Rose, Claude Siebenthal, E. K. Soper, Herbert S. Stark, Stephen Taber, Frederick P. Vickery, Gerald A. Waring, H. E. Williams, Hayes Young, and many others well known in science or mining. The "Branner Club" of Los Angeles is composed of his students in geology.

I must add a personal word. My acquaintance with Branner covers fifty-two years, the first two as fellow-student and fraternity brother in Delta Upsilon, the next thirty as fellow-teacher and co-worker in science in Indiana and in California, three more as my successor and colleague in administration of the educational work to which I gave the best twenty-five years of my life, and, finally, five years of retirement from active responsibility to the congenial work of writing out of the fullness of experience. In all these years he lived up to his motto, "I can get along without the respect of my neighbors, but not without

the respect of *Number One*." And in maintaining self-respect, he won the regard of his neighbors of whatever degree. A righteous life helps to strengthen all who come in contact with it. "There is always room for a man of force and he makes room for many."

DAVID STARR JORDAN

SCIENTIFIC EVENTS

WORLD PRODUCTION OF COAL IN 1921

THE world's production of coal in 1921 dropped back to the level of 1909. From reports so far received, the United States Geological Survey estimates the total output at approximately 1,100,000,000 metric tons. This figure is subject to material revision.

In comparison with the feverish year 1920, the year just closed shows a decrease of more than 200,000,000 tons. The chief factors in the decrease were the British miners' strike which lasted from April to June, and—more important—a world-wide industrial depression. Prices collapsed early in the year, and the sea-borne coal trade of the world fell off sharply. The consequent reduction in the volume of business offered to the shipping of the world has been an important element in the decline in ocean freight rates.

Of the major coal-producing nations, France and Germany were the only ones to show an increase. Progress in restoring the ruined mines of France is indicated by the steady increase in output of the past three years. In 1919, 22,000,000 tons were produced; in 1920, 25,000,000; in 1921, 29,000,000. A further increase of 12,000,000 tons, however, would be necessary to bring French production up to the level of 1913. German production of bituminous coal is also still far below the pre-war level although an increase was effected in 1921 as against 1920. German production of lignite in 1921 reached the highest point ever attained. The estimated output of 120,000,000 tons is an increase of 35,000,000 tons over the last year before the war.

The proportion contributed by the United States was 40.9 per cent., a larger share than in the years before the European war, but the smallest in any year since 1916.

The following table, prepared by W. I.